

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Jeffrey Blyth *et al.*  
Serial No. : 10/565094  
Filed : January 17, 2007  
Art Unit : 2872  
For : HOLOGRAPHIC SENSOR

Commissioner for Patents  
P O Box 1450  
Alexandria, VA 22313-1450

DECLARATION OF CHRISTOPHER ROBIN LOWE

Sir:

I, Christopher Robin Lowe, of the Institute of Biotechnology, University of Cambridge, Tennis Court Road, Cambridge, CB2 1QT, United Kingdom, make this declaration based on my personal knowledge and belief:

1. I am one of the inventors of the subject Application.
2. I have reviewed the specification and claims, the Office Action dated November 25, 2008, and the references cited in it, including those identified as Lowe *et al* (US5989923) and Stephens *et al* (GB2054995A).
3. The Examiner states that Lowe *et al* discloses apparatus "wherein the hologram is formed as a non-planar mirror (reflection hologram with fringes that can be flat or curved)". That is incorrect. It discloses that the fringe planes may be flat or curved, but that is true of almost all holograms. For example, a hologram of a 3-dimensional object is not flat; the fringes are curved. Accordingly, Lowe *et al* does not disclose a hologram formed as a non-planar mirror, or suggest that it should be; a non-planar mirror is a particular embodiment of particular utility in the context of the present invention. The general disclosure of Lowe *et al* is quite different from the creation of curved fringes as a result of using a reflector with a well defined geometry, which gives rise to controlled geometrical fringes. Specifically, these controlled fringes are used to deliberately manipulate the incident light, such as focus, or control the direction of, the reflected light, in a way that conventional curved fringes from a


three-dimensional object do not. This manipulation is advantageous for a sensor used in the subject Application.

4. The Examiner alleges that it "would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Lowe *et al.*, as taught by Stephens *et al.*, in order to guide light with the narrowest possible band width to the holographic surface so that the colours reflected are indicative of the part of the reflector from which it is received". I believe that this statement misinterprets the disclosure of Stephens *et al.*, in particular.

5. In the event that "light with the narrowest possible band width" was guided to the surface of a holographic sensor, in most cases there would be no reflection. This would be evident to one of ordinary skill in the art, and that person would therefore not consider the disclosure of Stephens *et al.* as relevant to use with a holographic sensor of the type described by Lowe *et al.*

6. It is evident from the specification of the subject Application that, rather than using monochromatic light (as disclosed by Stephens *et al.*), the optical fibres guide white light to the surface, capture the reflected narrower band light, and guide that to the detector. This key feature is not taught by neither Lowe *et al.* nor Stephens *et al.* Further, neither Lowe *et al.* nor Stephens *et al.* suggests the special utility of the present invention, i.e. the ability to use a subcutaneous implant, in diagnosis.

I hereby further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

By:   
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PROF. C.R. LOWE

Date: 16.03.09  
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